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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/723,400	11/27/2000	Neil A. Winegarden	717002.4	6264

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EXAMINER	
QUAN, ELIZABETH S	
ART UNIT	PAPER NUMBER
1743	7

DATE MAILED: 10/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/723,400	WINEGARDEN ET AL.	
	Examiner	Art Unit	
	Elizabeth Quan	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-43 is/are pending in the application.

4a) Of the above claim(s) 18-43 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) 2-4,8-11,15 and 16 is/are rejected.

7)☒ Claim(s) 5-7,12-14 and 17 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 27 November 2000 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of group I with claims 1-17 in Paper No. 5 is acknowledged.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Canada on 8/16/2000. It is noted, however, that applicant has not filed a certified copy of the 2,316,045 application as required by 35 U.S.C. 119(b).

Drawings

3. This application has been filed with informal drawings, which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

Specification

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

5. The use of the trademark TeleChem Chipmaker 2 and TeleChem Chipmaker 3 has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Objections

6. Claims 5-7, 12-14, and 17 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 5-7, 12-14, and 17 not been further treated on the merits.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

8. Claims 1-4, 8-11, 15, and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claim 1 recites the limitation "the microarray spotting members" in the last line. The element has not been positively recited. There is insufficient antecedent basis for this limitation in the claim.

10. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: microarray spotting members, plate, structure for coupling, and vacuum manifold. It appears how a vacuum drawn fluid from the members with coupling the plate with a source of vacuum.

11. Referring to claim 2, are these rows from the perspective of a cross section or top view. It is unclear and broad, as most arrangements can be viewed as a row.

12. Referring to claim 3, the specification has not sufficiently defined pins.

13. Referring to claim 4, the trademark TeleChem Chipmaker 2 and TeleChem Chipmaker 3 should be replaced with more generic terms or elements. Trademarks are not subject to constraint and therefore, a trademarked item can change in form or character. This renders the metes and bounds of the claim unclear.

14. Referring to claim 8, the claim appears to be incomplete. It is unknown how liquid is removed by a vacuum and moving the members up and down.

15. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: exactly how a vacuum and moving the members up and down removes liquid from the members.

16. Referring to claims 9-11, the term reciprocation should be further defined with specific upward or downward movement, as claim 11 does not allow downward movement with reciprocation distance greater than the distance between the plate and members.

17. Referring to claims 15 and 16, claim 1 is not a method claim. It is unknown whether it should be referred to claim 8 instead.

Claim Rejections - 35 USC § 102

18. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

19. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 97/40383 to Gavin et al.

Referring to claims 1-3, Gavin et al. disclose a vacuum manifold (160) for use in removing liquid from microarray spotting members or pins (162) (see FIGS. 1-4, 15, and 16; PAGE 11, lines 25-30; PAGE 19, lines 16-26; PAGE 20, lines 23-25). A plate (174) defining a plurality of fluid flow channel members (176) formed through the plate (174) (see FIG. 16; PAGE 20, lines 19-21). Each channel member has an inlet and outlet in fluid communication (see FIG. 16). The channel members (176) are arranged in parallel rows (see FIGS. 5, 5A, 10, 15, and 16). A structure couples the plate to communicate with a source of vacuum to draw fluid from the microarray spotting members or pins (162) through the fluid flow channel members (see FIGS. 5A, 7-9, 11, 11A, 11B, 12, 12A, 12B, 15, 16; PAGE 19, lines 20-26). Therefore, Gavin et al. includes all the limitations in claims 1-3.

Claim Rejections - 35 USC § 103

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

21. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

22. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

23. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 97/40383 to Gavin et al.

Referring to claim 4, Gavin et al. do not explicitly disclose the use of TeleChem Chipmaker 2 pins, TeleChem Chipmaker 3 pins, or a combination thereof. However, it would have been obvious to one having ordinary skill in the art to modify the device of Gavin et al. to use a specific brand of pins by TeleChem as they are disclosed by the Applicant as commercially available.

24. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 97/40383 to Gavin et al. in view of U.S. Patent No. 5,935,859 to Elliott et al.

Referring to claim 8, Gavin et al. disclose applying a source of vacuum to the manifold to remove liquid from microarray spotting members (see PAGE 19, lines 20-26). Gavin et al. do not disclose reciprocating the spotting members to create air turbulence between the spotting members and the inlets. However, Elliott et al. disclose

a robot arm assembly (12) to move the microarray spotting members proximate to the inlets (26,28,30,32) such that the members are concentric with the inlet during reciprocation (see ABSTRACT; FIGS. 1 and 4; COL. 3, lines 28-24 and 57-61). It appears moving the spotting members would provide more control over the alignment of the members with the inlets. Furthermore, the vertical movement of the spotting members toward the inlets would create air turbulence between the spotting members and inlets. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Gavin et al. to reciprocate the spotting members as in Elliott et al. to provide more control over the alignment of the members with the inlets.

25. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 97/40383 to Gavin et al. in view of U.S. Patent No. 5,935,859 to Elliott et al. and U.S. Patent No. 4,439,526 to Columbus.

Referring to claim 10, Gavin et al. in view of Elliott et al. do not explicitly disclose that the spotting members are about 100 micrometers from the inlet prior to reciprocation. Columbus discloses that useful spacing distance is between 50-600 microns between the members (16) and (18) to form a capillary transport passage (20) between opposing surfaces (24) and (26) (COL. 3, lines 37-51). Discovering the optimum value of a result effective variable, such as the distance between the members and inlet for a certain drop size, requires only routine skill in the art (*In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of

Gavin et al. in view of Elliott et al. to select an optimum spacing distance of 100 microns for the desired drop size within the range of 50-600 microns of Columbus.

26. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 97/40383 to Gavin et al. in view of U.S. Patent No. 5,935,859 to Elliott et al. and U.S. Patent No. 6,245,297 to Kowallis.

Referring to claim 11, Gavin et al. in view of Elliott et al. do not explicitly disclose that the spotting members are reciprocated about a distance of 1 mm. Kowallis discloses that the spacing distance between the members and the substrate is less than about 2 mm, which encompasses the sum of the reciprocation distance of 1 mm from the original distance of 100 microns (see COL. 13, lines 59-63). Discovering the optimum value of a result effective variable, such as the reciprocation distance between the members and inlet for a certain drop size, requires only routine skill in the art (*In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Gavin et al. in view of Elliott et al. to select an optimum reciprocation distance of 1 mm for the desired drop size that is less than 2 mm as taught by Columbus.

27. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 97/40383 to Gavin et al. in view of U.S. Patent No. 6,416,713 to Ford et al.

Referring to claim 15, Gavin et al. do not explicitly disclose that the vacuum is created by a compressed air system providing a pressure between 50-90 psi. Ford et al. disclose that a vacuum can be created by a compressed air system of up to 90 psi (see

COL. 14, lines 65 and 66). Discovering the optimum range or workable range, such as the pressure provided by a compressed air system for a certain flow rate, requires only routine skill in the art (*In re Aller*, 105 USPQ 233). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Gavin et al. to determine an optimum range of pressure provided by the compressed air system for the desired flow rate of liquid that is less than 90 psi as taught by Ford et al.

Referring to claim 16, Gavin et al. do not explicitly disclose that the vacuum is created by a compressed air system providing a pressure of 60 psi. Ford et al. disclose that a vacuum can be created by a compressed air system of up to 90 psi (see COL. 14, lines 65 and 66). Discovering the optimum value of a result effective variable, such as the pressure provided by a compressed air system for a certain flow rate, requires only routine skill in the art (*In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Gavin et al. to determine an to select an optimum pressure provided by the compressed air system for the desired flow rate of liquid that is less than 90 psi as taught by Ford et al.

Conclusion

28. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art includes one or more limitations in the claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Quan whose telephone number is (703) 305-1947. The examiner can normally be reached on M-F (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (703) 308-4037. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 879-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Elizabeth Quan
Examiner
Art Unit 1743

eq
September 30, 2002

Jill Warden
Supervisory Patent Examiner
Technology Center 1700